

REMARKS

Applicant is in receipt of the Office action mailed on March 18, 2003 (Paper No. 7) and thanks Examiner Patel for his detailed examination of the application. Claims 1, 21 and 27-44 were rejected. By this Amendment, claims 1 and 21 have been amended, claim 32 has been canceled and new independent claim 45 has been added. Claims 1, 21, 27-31 and 33-45 remain pending. Favorable consideration is respectfully requested in light of the amendments and the following Remarks.

Claims Rejection Under 35 U.S.C. §112

Claims 36-39 were rejected under 35 U.S.C. § 112, second paragraph, as being unclear. The Office Action states the limitation “the coating” as recited in claims 36-39 have insufficient antecedent basis.

Claim 1 has been amended to include “a coating”. Claims 36 – 39 depend from independent claim 1 and therefore now have a sufficient antecedent basis. Accordingly, the rejection is believed to be overcome and withdrawal is respectfully requested.

Claims Rejection Under 35 U.S.C. §102(b)

Claims 1, 21, 30-31, 34, 36-39, 40, 42-44 were rejected under 35 U.S.C. §102(b) as being anticipated by Patent JP 409287633, (U.S. Patent No. 6,062,572 referenced for text and Figures) to Hasegawa (hereinafter ‘633). Applicant respectfully traverses the rejection.

The ‘633 reference discloses a metal gasket made of a single thin metal plate 1 comprising openings 2a, 2b and apertures 2c. A bead 3a is formed around each of the openings 2a and apertures 2b, 2c while a bead 3b is formed around each portion of the gasket, which requires a raise of a surface pressure. A step member 4, including a coating layer having a property of high load resistance, is attached to each of the desired beads 3a and 3b. The coating is preferably made of a material composed of at least one selected from a synthetic resin, an inorganic substance, and a metal powder or a composite material composed of at least one selected from a synthetic resin, an inorganic substance, and a metal powder as a main component. *See col. 4, lines 1-6.* The metal powder for the coating layer may be a stainless chip, an aluminum powder, or the like. *See col. 4, lines 16-17.*

The ‘633 reference teaches metal powder as being a main component of the coating. However, it does not teach that the coating has a mass ratio of filler to bonding agent that is at least 2:1. The inventor has found that current coatings, even those that contain metal powder as a

main component of the filler, have a mass proportion of filler to bonding agent that results in poor heat conductivity. Poor heat conductivity hinders heat transfer, leading to undesired temperature gradients on gaskets. *See Specification page 3, paragraphs 1 and 2.* In an effort to overcome this disadvantage, the inventor of the present invention found that increasing the mass proportion of filler to mass proportion of bonding agent improves the temperature properties of the gaskets. The minimal mass ratio of filler to bonding agent must be 2:1 in order to see an improvement in the heat conductivity of the gasket. In fact, the proportion of the filler can advantageously be increased to amounts above 90% by mass, with improvements in the temperature properties of the gaskets being achieved. *See Specification page 4, paragraph 3.*

A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described in a single prior art reference. See MPEP §2131. Claim 1 has been amended to include the limitation that the mass ratio of filler to bonding agent is at least 2:1. Claims 30-31, 34 and 36-39 all depend from independent claim 1. Therefore, not all of the elements of claims 1, 30-31, 34, and 36-39 are disclosed in the '633 reference. At least the feature of a mass ratio of filler to bonding agent is at least 2:1 is not disclosed, taught or suggested in the '633 reference. Accordingly, the rejection is unsupported by the art and should be withdrawn.

Claim 21 has been amended to include the limitation that the mass ratio of filler to bonding agent is at least 2:1. Claims 40, 42 and 43 depend from independent claim 21. As stated above, the '633 reference does not disclose, teach or suggest the claim limitation of a mass ratio of filler to bonding agent is at least 2:1. Accordingly, withdrawal of the rejection is respectfully requested.

Regarding Claim 44, the '633 reference does not disclose, teach or suggest a particulate filler having a small surface area compared to the volume of the particulate filler. The '633 reference discloses that the metal powder is a main component of the coating, however, it does not disclose that the metal powder has a small surface area as compared to the volume of the metal powder. The inventor has found that using particulate filler having a small surface area compared to the volume of the particulate filler provides the finished coating with tighter packed individual particles of the filler and that a relatively large number of particulate fillers can join one another. The tight packed particulate fillers help to ensure the connecting function of the filler and the coating, resulting in an improved gasket. *See Specification pages 3-4, paragraph 5.* Accordingly, the '633 reference does not disclose, teach or suggest all of the claim limitations of Applicant's claimed invention. Withdrawal of the rejection is respectfully requested.

Furthermore, new independent claim 45 has been added. It recites that the deformation limiter includes at least one filler and one bonding agent, wherein the filler and the bonding agent form a coating. The mass proportion of the filler is greater than a proportion of bonding agent and the mass ratio of filler to bonding agent is at least 2:1. Each particle of filler has a small surface area in relation to a volume of the particle. The particles are spherical and at least 80% of the particles have an average grain size in the range between 5 and 100 μm . As stated by the Examiner, the '633 reference does not disclose, teach or suggest the claim limitations of a mass ratio of filler to bonding agent is at least 2:1, of particles that are spherical, or particles having a grain size in the range of between 5 to 100 micrometers. Accordingly, new independent claim 45 is patentable over the '633 reference.

Claims Rejection Under 35 U.S.C. §103

Claims 27-29, 32-33, 35 and 41 are rejected under 35 U.S.C. 103(a) as being unpatentable over Patent JP 409287663A to Hasegawa in view of Patent DE 3611285 A1 to Zerfass (hereinafter '285). For at least the following reasons, Applicant respectfully traverses the rejection.

Applicant agrees with the Examiner that the '633 reference does not disclose particles having a smoothed, rounded surface or are spherical, the particles having a grain size in the range between 5 to 100 micrometers. Nor does the '633 reference disclose an additional thermoplastic addition, or a mass ratio of filler to bonding agent as at least 2:1 or 9:1. Examiner relies on the abstract of the '285 reference to teach a screen-printable epoxy resin having particles of grain size in the range between 5 to 100 micrometer, an additional thermoplastic addition and a mass ratio of filler to bonding agent at least 2:1 or 9:1.

The '285 abstract discloses a screen-printable epoxy resin material containing an epoxy hardener component I, a solid crystalline hardener II and a reactive, low-viscosity epoxy thinner III. The abstract of the '285 does not disclose the mass proportion of filler to bonding agent ratio. The abstract of the '285 reference discloses that the composition of the epoxy hardener component I contains 50-90 wt. % inorganic filler. However, the abstract of the '285 reference does not disclose the mass ratio or amount of the epoxy hardener component I to the solid crystalline hardener II or to the low-viscosity epoxy thinner III. In contrast, Applicant's claimed invention states the mass proportion of the filler is greater than a proportion of bonding agent and in particular, the mass ratio of filler to bonding agent is at least 2:1. As stated above, the inventor has found that the high pressure and heat resistance performance of the deformation limiter improves when it is used in conjunction with a coating having an increased ratio of filler to

bonding agent. Accordingly, the abstract of the '285 reference, individually or in combination with the '633 reference, does not teach or suggest all the claim limitation of Applicant's claimed invention. Withdrawal of the rejection is respectfully requested.

Official Notice

Regarding claim 28, the Examiner takes official notice that particles are spherical is old and well known in the art. Applicant respectfully traverses the official notice and requests the Examiner cite a reference in support of his position. Particles that are spherical achieve the smallest surface:volume ratio. The inventor has found using filler particles that are spherical, in contrast to the convention powder-form material, provides for improved processing and performance of the coating. Ultimately, the filler particles bear the pressures and compressive forces under loaded conditions. Using filler particles that are spherical allows for tighter packing of the individual particles. Additionally, a relatively large number of these particles are able to join one another directly, such that they support one another directly. The result is a coating that has improved high pressure resistance. Therefore, it is not old and well known in the art to use filler particles that are spherical.

The Office action indicates that the prior art of record and not relied upon is considered very pertinent to the claimed invention. The Office action cites U.S. Patents to Nicholson, Nippon Resins, Omura, Ueta and Mejweski et al. The references have been reviewed and Applicant has found them to be no more pertinent than the prior art relied upon by the Office action.

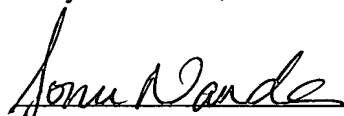
CONCLUSION

Pursuant to the Office Action and the comments above, it is believed the application is now in condition for allowance. If, however, there are any outstanding issues that can be resolved by telephone conference, the Examiner is earnestly encouraged to telephone the undersigned representative.

It is believed that any additional fees due with respect to this paper have already been identified in any transmittal accompanying this paper. However, if any additional fees are required in connection with the filing of this paper that are not identified in any accompanying transmittal, permission is given to charge account number 18-0013 in the name of Rader, Fishman and Grauer PLLC.

Respectfully submitted,

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